

In the Claims:

Listing of all claims:

CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

- 1                   1.     (Original)         A welding power supply having  
2                   an arc-width control, comprising:  
3                   a power circuit having a welding output and at  
4                   least one control input, wherein the welding output is  
5                   characterized by a plurality of output welding parameters;  
6                   and  
7                   a controller, having at least one control output,  
8                   connected to the at least one control input, and having a  
9                   user adjustable arc-width control input, and a user  
10                  adjustable wire feed speed input, wherein the controller  
11                  includes an arc width control module having as inputs the  
12                  wire feed speed input and the arc width control input, and  
13                  having at least one welding parameter adjustment output, and  
14                  wherein the at least one welding parameter adjustment output  
15                  has a gain responsive to the wire feed speed input, such  
16                  that there are at least three gains over a range of possible  
17                  wire feed speeds.
- 1                   2.     (Original)         The welding power supply of claim  
2                   1, wherein the at least one welding parameter adjustment output  
3                   gain varies over the entire range of possible wire feed speeds.
- 1                   3.     (Original)         The welding power supply of claim  
2                   1, wherein the at least one welding parameter adjustment output  
3                   gains have at least three taught points for a given wire feed  
4                   speed.

1                   4.     (Original)       The welding power supply of claim  
2     3, wherein the welding parameter adjustment output gains are  
3     interpolated between the at least three taught points.

1                   5.     (Original)       The welding power supply of claim  
2     1, wherein the plurality of output welding parameters include  
3     peak amps, background amps, pulse width, frequency, adaptive  
4     voltage, ramp up and ramp down, and the at least one welding  
5     parameter adjustment includes adjustments for at least three of  
6     the plurality of output parameters.

1                   6.     (Original)       The welding power supply of claim  
2     5, wherein the at least one welding parameter adjustment includes  
3     adjustments for at least five of the plurality of output  
4     parameters.

1                   7.     (Original)       The welding power supply of claim  
2     6, wherein the at least one welding parameter adjustment includes  
3     adjustments for at least six of the plurality of output  
4     parameters.

1                   8.     (Original)       A welding power supply having an  
2     arc-width control, comprising:

3                   a power circuit having a welding output and at  
4     least one control input, wherein the welding output is  
5     characterized by at least five output parameters; and

6                   a controller, having at least one control output,  
7     connected to the at least one control input, and having a  
8     user adjustable arc-width control input, and a user  
9     adjustable wire feed speed input, wherein the controller  
10    includes an arc width control module having as inputs the  
11    wire feed speed input and the arc width control input, and  
12    having at least five welding parameter adjustment outputs

13 that are responsive to the wire feed speed input and the  
14 arc-width control input.

1 9. (Original) The welding power supply of claim  
2 8, wherein the at least five welding parameter adjustment outputs  
3 have gains responsive to the wire feed speed input, wherein the  
4 gains vary over the entire range of possible wire feed speeds.

1 10. (Original) The welding power supply of claim  
2 9, wherein the at least five welding parameter adjustment output  
3 gains has at least three taught points for a given wire feed  
4 speed.

1 11. (Original) The welding power supply of claim  
2 10, wherein the at least five welding parameter adjustment output  
3 gains are interpolated between the at least three taught points.

1 12. (Original) The welding power supply of claim  
2 9, wherein the at least five output parameters include peak amps,  
3 background amps, pulse width, frequency, and adaptive voltage,  
4 and the at least five welding parameter adjustment outputs  
5 includes adjustments for peak amps, background amps, pulse width,  
6 frequency, and adaptive voltage.

1 13. (Original) The welding power supply of claim  
2 12, wherein the at least five output parameters further include  
3 ramp up and ramp down, and the at least five welding parameter  
4 adjustment outputs further include adjustments for ramp up and  
5 ramp down.

1 14. (Original) A welding power supply  
2 comprising:  
3 a source of power, having at least one power  
4 source control input;

5 a wire feeder, connected to the source of power  
6 and having at least one wire feeder control input; and  
7 a controller having welding parameter outputs  
8 connected to the power source control input and the wire  
9 feeder control input, and further including an arc width  
10 input, wherein at least five welding parameters are  
11 simultaneously controlled in response to the arc width input  
12 such that a desired arc width is obtained, without changing  
13 other arc characteristics.

1 15. (Original) The welding supply of claim 14  
2 wherein the at least five welding parameters include at least  
3 five of peak amps, background amps, pulse width, pulse  
4 frequency, adaptive voltage, ramp up and ramp down.

1 16. (Original) A welding power supply having  
2 an arc-width control, comprising:  
3 power means for providing a welding output in  
4 response to at least one control input, wherein the welding  
5 output is characterized by a plurality of output welding  
6 parameters; and

7 control means for controlling the power means with  
8 at least one control output connected to the at least one  
9 control in response to a user adjustable arc-width control  
10 input and a user adjustable wire feed speed input, wherein  
11 the control means includes an arc width control means for  
12 controlling arc width, and having as inputs the wire feed  
13 speed input and the arc-width control input, and having at  
14 least one welding parameter adjustment output, and wherein  
15 the at least one welding parameter adjustment output has a  
16 gain responsive to the wire feed speed input, such that  
17 there are at least three gains over a range of possible wire  
18 feed speeds.

1           17. (Original)           The welding power supply of claim  
2   16, wherein the at least one welding parameter adjustment output  
3   gain varies over the entire range of possible wire feed speeds.

1           18. (Original)           The welding power supply of claim  
2   17, wherein the at least one welding parameter adjustment output  
3   gains have at least three taught points for a given wire feed  
4   speed.

1           19. (Original)           The welding power supply of claim  
2   18, further including means for interpolating the welding  
3   parameter adjustment output gains are between the at least three  
4   taught points.

1           20. (Currently Amended)   The welding power supply of  
2   claim ~~21~~ 19, wherein the plurality of output parameters include  
3   peak amps, background amps, pulse width, frequency, adaptive  
4   voltage, ramp up and ramp down, and the at least one welding  
5   parameter adjustment includes adjustments for at least three of  
6   the plurality of output parameters.

1           21. (Currently Amended)   The welding power supply of  
2   claim ~~21~~ 19, wherein the at least one welding parameter  
3   adjustment includes adjustments for at least five of the  
4   plurality of output parameters.

1           22. (Original)           The welding power supply of claim  
2   21, wherein the at least one welding parameter adjustment  
3   includes adjustments for at least six of the plurality of output  
4   parameters.

1           23. (Original)           A welding power supply having an  
2   arc-width control, comprising:

3 power means for providing a welding output in  
4 response to at least one control input, wherein the welding  
5 output is characterized by at least five output parameters;  
6 and

7 control means for controlling the power means with  
8 at least one control output connected to the at least one  
9 control input in response to a user adjustable arc-width  
10 control input and a user adjustable wire feed speed input,  
11 and for providing at least five welding parameter adjustment  
12 outputs that are responsive to the wire feed speed input and  
13 the arc-width control input.

1 24. (Original) The welding power supply of claim  
2 23, wherein the at least five welding parameter adjustment  
3 outputs have gains responsive to the wire feed speed input,  
4 wherein the gains vary over the entire range of possible wire  
5 feed speeds.

1 25. (Original) The welding power supply of claim  
2 24, wherein the at least five welding parameter adjustment output  
3 gains has at least three taught points for a given wire feed  
4 speed.

1 26. (Original) The welding power supply of claim  
2 25, wherein the at least five welding parameter adjustment output  
3 gains are interpolated between the at least three taught points.

1 27. (Original) The welding power supply of claim  
2 26, wherein the at least five output parameters include peak  
3 amps, background amps, pulse width, frequency, and adaptive  
4 voltage, and the at least five welding parameter adjustment  
5 outputs includes adjustments for peak amps, background amps,  
6 pulse width, frequency, and adaptive voltage.

1                   28. (Original)           The welding power supply of claim  
2 25, wherein the at least five output parameters further include  
3 ramp up and ramp down, and the at least five welding parameter  
4 adjustment outputs includes further include adjustments for ramp  
5 up and ramp down.

1                   29. (Original)           A welding power supply  
2 comprising:  
3                   power means for providing welding power in  
4 response to at least one power source control input;  
5                   wire feeding means, connected to the source of  
6 power, for feeding wire in response to at least one wire  
7 feeder control input; and  
8                   control means for providing welding parameter  
9 outputs, connected to the power source control input and the  
10 wire feeder control input, and further including an arc  
11 width input, and further for simultaneously controlling at  
12 least five welding parameters are in response to the arc  
13 width input such that a desired arc width is obtained,  
14 without changing other arc characteristics.

1                   30. (Original)           The welding supply of claim 29  
2 wherein the at least five welding parameters include at least  
3 five of peak amps, background amps current, pulse width, pulse  
4 frequency, adaptive voltage, ramp up and ramp down.

1                   31. (Original)           A method of providing welding  
2 power, comprising:  
3                   providing welding power, wherein the power is  
4 characterized by a plurality of output parameters; and  
5                   controlling the power, and the plurality of output  
6 parameters, in response to a user adjustable output set  
7 point; and

8                   controlling arc width and the user adjustable set  
9                   point in response to a user adjustable arc-width control  
10                  input, by adjusting the plurality of output parameters with  
11                  a gain, wherein the gain has at least three values over a  
12                  range of possible user adjustable output set points.

1                   32. (Original)           The method of claim 31, wherein  
2                  the user adjustable output set point is a wire feed speed  
3                  setting.

1                   33. (Original)           The method of claim 32, wherein  
2                  the gain varies over the entire range of possible user adjustable  
3                  output set points.

1                   34. (Original)           The method of claim 31, wherein  
2                  the gain varies over the entire range of possible user adjustable  
3                  output set points.

1                   35. (Original)           The method of claim 34, wherein  
2                  the gains have at least three taught points for a given wire feed  
3                  speed.

1                   36. (Original)           The method of claim 35, wherein  
2                  the gains are interpolated between the at least three taught  
3                  points.

1                   37. (Original)           The method of claim 31, wherein  
2                  the plurality of output parameters include peak amps, background  
3                  amps, pulse width, frequency, adaptive voltage, ramp up and ramp  
4                  down, and the adjusting includes adjusting at least three of the  
5                  plurality of output parameters.



1           38. (Original)           The method of claim 37, wherein  
2     the adjusting includes adjusting at least five of the plurality  
3     of output parameters.

1           39. (Original)           The method of claim 37, wherein  
2     the adjusting includes adjusting at least six of the plurality of  
3     output parameters.

1           40. (Original)           A method of arc welding,  
2     comprising:  
3           providing welding power in response to at least  
4     one control input, wherein the welding power is  
5     characterized by at least five output parameters; and  
6           controlling the power in response to a user  
7     adjustable arc-width control input and a user adjustable  
8     wire feed speed input by adjusting the at least five  
9     parameters in response to the wire feed speed input and the  
10    arc-width control input.

1           41. (Original)           The method of claim 40, wherein  
2     the at least five welding parameter adjustments have gains  
3     responsive to the wire feed speed input, wherein the gains vary  
4     over the entire range of possible wire feed speeds.

1           42. (Original)           The method of claim 40, wherein  
2     the at least five welding parameter adjustment output gains have  
3     at least three taught points.

1           43. (Original)           The method of claim 42, wherein  
2     the at least five welding parameter adjustment output gains are  
3     interpolated between the at least three taught points.

1           44. (Original)           The method of claim 40, wherein  
2     the at least five welding parameter adjustment output gains have  
3     at least three taught points.

1           45. (Original)           The method of claim 44, wherein  
2     the at least five output parameters further include ramp up and  
3     ramp down, and the at least five welding parameter adjustment  
4     outputs includes further include adjustments for ramp up and ramp  
5     down.

1           46. (Original)           A method of providing welding  
2     power comprising:  
3             feeding wire to a weld;  
4             providing power to the weld; and  
5             controlling output parameter of the power and the  
6     speed of feeding wire in response to a user adjustable arc  
7     width input, wherein at least five output parameters are  
8     simultaneously controlled in response to the arc width input  
9     such that a desired arc width is obtained, without changing  
10    other arc characteristics.

1           47. (Original)           The method of claim 46 wherein the  
2     at least five welding parameters include at least five of peak  
3     amps, background amps current, pulse width, pulse frequency,  
4     adaptive voltage, ramp up and ramp down.